George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

ORGANIZATIONAL INSTRUCTION

MONITORING FIELD CLEANING OPERATIONS

OPR(s)	OPR DESIGNEE
QD10, QD20, QD30, and QD40	Chris Shepherd

DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline	N/A	03/11/98	Initial release.
Revision	A	7/1/99	Changes made to reflect new organization code changes and/or Changes made to reflect new directives renumbering scheme and to incorporate the corrective action for closure of NCR 266
Revision	B	3/6/00	Paragraph 10 is re-written to establish training requirements for the function described in this procedure. In addition, document was re-formatted in accordance with the OI template
Revision	C	9/09/02	Format and numbering change to implement requirements of QS-A-001 rev F.
Revision	D	09/18/03	Change of approving authority. Change made to section 1.3 to replace the reference of QS10 to a Quality assurance person.
Revision	E	10/1/04	Revised to bring document in compliance with the HQ Rules Review Action (CAITS: 04-DA01-0387). Changes were also made to reflect S&MA organizational name changes (i.e., QS to QD).

MONITORING FIELD CLEANING OPERATIONS

1.   PURPOSE, SCOPE, APPLICABILITY

1.1.   Purpose. The purpose of this instruction is to provide well defined and consistent requirements for ensuring compliance with MSFC-SPEC-164.

1.2.   Scope. This instruction provides requirements for inspection, surveillance and monitoring of field cleaning operations of high pressure and cryogenic systems at MSFC. This includes ground systems piping, pressure vessels and associated components which are too large or cannot be disassembled for precision cleaning.

1.3.   Applicability. This procedure applies to S&MA Quality Assurance and S&MA contractor personnel who provide quality assurance services to ensure compliance with approved procedures for field cleaning operations. Field cleaning may be performed for the Facilities Engineering Department or Engineering Directorate.

2.   DOCUMENTS

2.1.   Applicable Documents

MSFC-SPEC-164 *Cleanliness of Components for use in Oxygen, Fuel, and Pneumatic Systems Specification.*

2.2.   Reference Documents

None

3.   DEFINITIONS

Refer to MSFC-SPEC-164.

4.   INSTRUCTIONS

S&MA personnel shall perform the following steps:

4.1.   Review the contractor's procedure and the purchase order/contract. The procedure must provide the following information:

a.   Contract or Purchase Order (PO) number.

b.   Identification of hardware to be cleaned.

c. Identification of specification and cleanliness level per contract/P.O.

d. List of equipment.

e. List of chemicals, MSDS if required.

f. Detailed step-by-step process instructions.

g. Data sheets for particulate, non-volatile residue (NVR), visual, dew-point and pH results, and hydrostatic test if required.

h. Safety precautions (lockout tagout, PPE) and chemical disposal requirements.

i. Instructions for confined space operations as required. Obtain Industrial Safety Office approval.

4.2.   When required (i.e. when a new process is proposed or when an approved process is changed), consult with engineering to determine acceptability of the process.

4.3.   Monitor compliance with the procedure. Perform the following as a minimum:

a. Verify equipment and chemicals are as described in the procedure.

b. Monitor the process.

c. Random sample the visual inspection, pH, dew-point, particulate and NVR tests. Visual inspection may be aided with a black light, flashlight, mirror or borescope as long as cleanliness is maintained.

d. If requested by the user, witness hydrostatic test.

4.4.   Perform 100% review of data sheets. Verify that the results met the specification/contract requirements. Stamp or sign data sheets to signify quality assurance review of data. Stamp or sign any other parameters, which were performed/witnessed. When necessary, request that independent test samples be pulled for MSFC engineering analysis. Compare MSFC results with data sheets to ensure contractor compliance.

NOTE: Samples may meet specification while items being cleaned still contain particulate, rust or other contaminates. Ensure that visual inspections are performed as required. A process change or recleaning may be required.

4.5.   Verify packaging, marking and purging are per approved procedures. Verify cleanliness is maintained during re-assembly of the system.

5.   NOTES

5.1.   <u>Directive Replacement</u>. This issuance replaces QS-QA-026 Revision D, "Monitoring Field Cleaning Operations".

6.   SAFETY PRECAUTIONS AND WARNING NOTES

Refer to approved procedure for applicable precautions.
Safety engineering approval is required for all tank entry operations.

7.   APPENDICES, DATA, REPORTS, AND FORMS

None

8.   RECORDS

None

9.   TOOLS, EQUIPMENT, AND MATERIALS

None

10.   PERSONNEL TRAINING AND CERTIFICATION

Personnel performing this function prior to baselining of this procedure will be "grandfathered" for training purposes. A memo will document those personnel who are "grandfathered". For new personnel, OJT will be performed with experienced personnel until they demonstrate proficiency and understanding of the process and requirements. OJT hours will be documented on the employee's Individual Development Plan. The Team Lead will determine the acceptable level of proficiency.

11. FLOW DIAGRAM

None